

# Comparisons of Job Characteristics

Focus Occupation: **Chemists (19-2031)**

Associated Occupation: **Microbiologists (19-1022)**

[Compare Knowledge](#)

[Compare Skills](#)

[Compare Abilities](#)

[Compare Detailed Work Activities](#)

[Compare Tools and Technologies](#)

<<	Focus occupation element is much lower
<	Focus occupation element is lower
0	Focus occupation element is at a similar level
>	Focus occupation element is at a higher level
>>	Focus occupation element is at a much higher level

## Knowledge

Similarity of Focus Occupation to Associated Occupation: 53

Focus Occupation: Chemists (19-2031)

Associated Occupation: Microbiologists (19-1022)

Associated Occupation's Key Knowledge Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating		Evaluation of Focus Occupation
Biology	3.7	24.1	6.8	<<	Extensive education and/or training may be required
English Language	11.2	16.6	13.3	<<	Extensive education and/or training may be required
Chemistry	4.8	15.2	21.8	>>	Current knowledge level is likely more than sufficient
Medicine and Dentistry	3.7	10.7	2.6	<<	Extensive education and/or training may be required

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O\*NET (Occupation Information Network) data.

## Skills

Similarity of Focus Occupation to Associated Occupation: 90

Focus Occupation: Chemists (19-2031)

Associated Occupation: Microbiologists (19-1022)

Associated Occupation's Key Skills Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating		Evaluation of Focus Occupation
Science	4.5	17.0	17.3	0	Current skill level may be sufficient
Reading Comprehension	10.7	15.5	15.7	0	Current skill level may be sufficient
Critical Thinking	10.8	15.0	12.5	<	A higher skill level may be required
Writing	9.2	14.8	13.0	<	A higher skill level may be required
Active Learning	8.7	14.7	11.4	<<	Extensive development of skills in this area may be required
Learning Strategies	7.2	12.2	8.3	<<	Extensive development of skills in this area may be required
Mathematics	6.2	11.0	11.4	0	Current skill level may be sufficient

Management of Personnel Resources	6.9	10.6	8.5	<	A higher skill level may be required
Systems Analysis	6.5	10.6	8.6	<	A higher skill level may be required
Systems Evaluation	6.4	9.9	7.2	<<	Extensive development of skills in this area may be required
Operations Analysis	5.0	8.8	7.9	<	A higher skill level may be required

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O\*NET (Occupation Information Network) data.

Abilities		Similarity of Focus Occupation to Associated Occupation: 97			
Focus Occupation: Chemists (19-2031) Associated Occupation: Microbiologists (19-1022)					
Associated Occupation's Key Abilities Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating	Evaluation of Focus Occupation	
Inductive Reasoning	10.2	18.0	13.8	<<	Extensive improvement in abilities may be required
Written Comprehension	11.0	16.5	14.9	<	Some improvement in abilities may be required
Problem Sensitivity	11.1	16.1	12.9	<<	Extensive improvement in abilities may be required
Category Flexibility	9.0	16.0	13.6	<	Some improvement in abilities may be required
Deductive Reasoning	10.6	15.7	13.6	<	Some improvement in abilities may be required
Written Expression	9.8	15.5	13.4	<	Some improvement in abilities may be required
Near Vision	11.1	15.0	13.5	<	Some improvement in abilities may be required
Information Ordering	9.9	13.9	12.8	0	Current ability level may be sufficient
Flexibility of Closure	7.8	13.6	10.7	<<	Extensive improvement in abilities may be required
Fluency of Ideas	7.6	12.8	9.7	<<	Extensive improvement in abilities may be required

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O\*NET (Occupation Information Network) data.

Activities that Both Occupations Have in Common		Similarity of Focus Occupation to Associated Occupation: 93
Focus Occupation: Chemists (19-2031) Associated Occupation: Microbiologists (19-1022)		
Work Activities	Exclusivity of Activity	
Adhere to safety procedures	12	
Advise clients or customers	19	
Advise governmental or industrial personnel	28	

Analyze scientific research data or investigative findings	27
Classify plants, animals, or other natural phenomena	69
Collect scientific or technical data	30
Collect statistical data	47
Communicate technical information	4
Conduct analyses or tests of organic compounds	71
Conduct laboratory research or experiments	57
Conduct standardized qualitative laboratory analyses	62
Conduct standardized quantitative laboratory analyses	62
Confer with engineering, technical or manufacturing personnel	25
Confer with research personnel	50
Confer with scientists	54
Develop new products based on scientific research results	71
Develop or maintain databases	30
Develop plans for programs or projects	31
Develop policies, procedures, methods, or standards	21
Develop scientific or mathematical hypotheses, theories, or laws	62
Develop tables depicting data	33
Direct and coordinate activities of workers or staff	3
Direct and coordinate scientific research or investigative studies	27
Direct implementation of new procedures, policies, or programs	60
Explain complex mathematical information	30
Follow safe waste disposal procedures	50
Forecast or predict phenomena based upon research data	71
Identify nutritional value of foods	87
Maintain records, reports, or files	5
Make decisions	24
Make presentations	13
Plan scientific research or investigative studies	48
Prepare reports	8
Prepare technical reports or related documentation	22
Recommend further study or action based on research data	60
Record test results, test procedures, or inspection data	48
Resolve engineering or science problems	46
Use chemical testing or analysis procedures	54
Use computers to enter, access or retrieve data	3
Use hazardous materials information	35
Use knowledge of investigation techniques	16
Use laboratory equipment	60
Use library or online Internet research techniques	21
Use mathematical or statistical methods to identify or analyze problems	30
Use nutrition research techniques	81
Use pollution control techniques	62
Use quantitative research methods	35
Use relational database software	26
Use scientific research methodology	21
Use spreadsheet software	18
Use statistics in food research	95

Use word processing or desktop publishing software	17
Write business project or bid proposals	48
Write research or project grant proposals	33
Write scholarly or technical research papers	36

Not all positions in these occupations will necessarily perform all of the listed activities. The exclusivity rating is an indication of how unique the activity is amongst all occupations. The maximum rating is 100. High scores indicate that only a small number of occupations engage in that activity.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O\*NET (Occupation Information Network) data.

## Tools and Technologies that Both Occupations Have in Common

Similarity of Focus  
Occupation to Associated  
Occupation: 82

**Focus Occupation: Chemists (19-2031)**  
**Associated Occupation: Microbiologists (19-1022)**

Tools and Technologies	Exclusivity
Cameras	2
Chemical evaluation instruments and supplies	10
Chromatographic measuring instruments and accessories	16
Clinical and diagnostic analyzers and accessories and supplies	18
Computer printers	2
Computers	1
Content authoring and editing software	1
Crystallography equipment	23
Data management and query software	1
Electrical measuring and testing equipment	7
Electrochemical measuring instruments and accessories	9
Gas analyzers and monitors	10
General laboratory glassware and plasticware and supplies	13
Histology equipment	35
Indicating and recording instruments	2
Industry specific software	1
Laboratory baths	24
Laboratory blending and dispersing and homogenizing equipment and supplies	27
Laboratory centrifuges and accessories	13
Laboratory cooling equipment	25
Laboratory decanting and distilling and evaporating and extracting equipment and supplies	19
Laboratory electron and solid state physics equipment	29
Laboratory electrophoresis and blotting system and supplies	26
Laboratory enclosures and accessories	17
Laboratory environmental conditioning equipment	24
Laboratory freeze dryers and lyophilizers and accessories	40
Laboratory heating and drying equipment	13
Laboratory incubating equipment	20
Laboratory mixing and stirring and shaking equipment and supplies	19
Laboratory ovens and accessories	15
Laboratory pumps and tubing	23
Laboratory washing and cleaning equipment	35

Light and wave generating and measuring equipment	4
Network applications software	1
Pipettes and liquid handling equipment and supplies	16
Respiratory protection	6
Spectroscopic equipment	10
Temperature and heat measuring instruments	6
Test Tubes	26
Tissue culture and high throughput screening supplies	31
Viewing and observing instruments and accessories	4
Weight measuring instruments	7

Not all positions in these occupations will necessarily use all of the listed tools and technologies. The exclusivity rating is an indication of how unique the tool or technology is amongst all occupations. The maximum rating is 100. High scores indicate that only a small number of occupations use that tool or technology.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O\*NET (Occupation Information Network) data.